IN THE SPECIFICATION

Please **replace** the passage beginning at line 16 on page 2 with the following:

FIG. 12A is a block diagram showing the sequence of operations during variable-magnification processing in the cross-scan direction. By varying the speeds of travel of first scanning unit 40a and second scanning unit 40b, which comprise reflecting mirrors 42a through 42c of digital copier 30 at FIG. 1, to be described below, the number of lines of image data input to photoelectric conversion element (hereinafter referred to as "CCD") 44 is increased or decreased, variable-magnification processing being carried out on image data as a result of alteration in the number of lines in the original input at multivalue image processing section 402 of FIG. 2, and the image data which has been subjected to variable-magnification processing is output to laser write unit (hereinafter referred to as "LSU") 46, and printing is carried out on recording media. If, for example as shown in FIG. 12B, control is carried out such that image data is sent to multivalue image processing section 402 with the same line having been acquired twice, an image of magnification 2 x will be obtained. If, on the other hand as shown at FIG. 12C, acquisition with respect to a plurality of lines occurs once every other line, an image of magnification 1/2 x will be obtained.

Please **replace** the passage beginning at line 7 on page 18 with the following:

Electrophotographic processing section 47 is equipped with an electrostatic charging device, a developer, a transfer device, a separator, a cleaner, and a charge removal device arranged about the periphery of photosensitive drum 48. The sheet media transport system 50 is equipped with a transport section 33 that transports sheet media P to a transfer location at which the transfer device of the aforementioned electrophotographic processing section 47 which carries out image formation is arranged; media supply cassettes 51, 52, 53 for delivering sheet media P to transport section 33; manual media supply device 54 for supply as needed of sheet media of necessary size; fixing device 49 for fixing a toner image formed on sheet P following transfer; and resupply paths 55, 56 for resupplying sheet media P so as to again form an image on the reverse side of sheet media P following fixing. Furthermore, arranged after fixing device 49 in the media transport path is a postprocessing device 34 that performs processing such as sorting processing wherein sheet media P on which images are recorded are received and are collated into groups when a plurality of sets of copies are made on this sheet media P, stapling processing wherein media collated into groups are bound together, and the like.

Please **replace** the passage between line 9 on page 22 and line 1 on page 23 with the following:

Main image processing circuit board 400, being controlled by main CPU 401, comprises a multivalue image processing section 402 that performs shading correction, density correction, regional division, filtering, MTF (modulation transfer function) correction, resolution conversion, electronic zoom (variable-magnification processing), gamma correction, and other such processing affecting the multivalue image data while still in that form so as to produce an image having the desired density-gradation tonal quality from digital data pertaining to the original image which is sent thereto from the CCD circuit board 300; a memory 403 that stores various types of control information, such as that pertaining to the image data whereon processing has been performed or monitoring of the sequence of processing

operations; a field memory ~~403a~~ that stores one page worth of an image; and a laser control section 404 that controls transfer of data to LSU 46 in order to recreate in image form the image data which has been subjected to processing.

Please **replace** the passage between line 3 on page 23 and line 2 on page 24 with the following:

Subordinate image processing circuit board 500, being connected to main image processing circuit board 400 by a connector 505, comprises a binary image processing section 501 which is controlled by main CPU 401 on main image processing circuit board 400; a memory 502a which stores and monitors binary image information that has been subjected to image processing, control information arising in connection with processing, and the like and a gate array 502b that controls the memory 502a; a hard disk 503a for storing and monitoring a plurality of pages of original image data and for repeatedly reading a plurality of pages of original images as many times as is required to create a desired plurality of sets of copies and a gate array 503b that controls the hard disk 503a; and a small computer system interface(SCSI) circuit board 504a which serves as an external interface and a gate array 504b that controls the SCSI control board 504a. Furthermore, the binary image processing section 501 comprises a processing section capable of converting multivalue image data into a binary image, a processing section capable of rotating an image, and a binary variable-magnification processing section capable of carrying out variable-magnification processing of a binary image, and is moreover equipped with a facsimile interface (indicated as "FAX I/F" in FIG. 2) so as to permit transmission and reception of facsimile images by way of communication means.

Please **replace** the passage between line 14 on page 26 and line 2 on page 27 with the following:

The 2-bit digital image data thus produced by conversion is transferred, in an amount corresponding to one original sheet at a time, to hard disk or other such disk memory 503a, where it is temporarily stored and monitored. When the entire set of

originals placed on RADF 36 of digital copier 30 has been captured and processed, the 2-bit digital image data temporarily stored on hard disk 503a is, as a result of control by gate array 503b, repeatedly read as many times as the indicated number of sets of copies, and the 2-bit digital image data which has been read is again sent to main image processing circuit board 400 by way of connector connection regions 405 and 505, is subjected to gamma correction and other such processing, and is sent to LSU 46 by way of laser control section 404.

Please **replace** the passage beginning at line 22 on page 27 with the following:

Moreover, while images reconstructed as image pages at printer circuit board 601 are sent to subordinate image processing circuit board 500, these are merely temporarily stored in hard disk 503a without being subjected to binary image processing. Moreover, image pages are not subjected to binary image processing when image pages stored for a time on hard disk 503a are read therefrom. In addition, image data temporarily stored on hard disk 503a are~~is~~ sent to main image processing circuit board 400 as they are~~it is~~ read from hard disk 503a so as to assume a prescribed page order, gamma correction is carried out, and writing of images from laser control section 404 is controlled such that images are reproduced at LSU 46.

Please **replace** the passages beginning at line 15 on page 27 and ending at line 8 on page 28 with the following:

Images sent from an a personal computer or other such external device connected to a network are reconstructed into images, in units of pages, at printer circuit board 601, are thereafter transferred from SCSI circuit board 504a, being an interface, to, initially, subordinate image processing circuit board 500, and, from there, are stored in hard disk 503a or other such memory.

Moreover, while images reconstructed as image pages at printer circuit board 601 are sent to subordinate image processing circuit board 500, these are merely temporarily stored in hard disk 503a without being subjected to binary image

processing. Moreover, image pages are not subjected to binary image processing when image pages stored for a time on hard disk 503a are read therefrom. In addition, image data temporarily stored on hard disk 503a are~~is~~ sent to main image processing circuit board 400 as they are~~it is~~ read from hard disk 503a so as to assume a prescribed page order, gamma correction is carried out, and writing of images from laser control section 404 is controlled such that images are reproduced at LSU 46.

Please **replace** the passages between lines 7 and 24 on page 29 with the following:

Moreover, with respect to conversion of 8-bit digital image data into 2-bit digital image data incorporating error diffusion processing and other such processing, because carrying out multivalue-binary conversion alone will be problematic in terms of image quality, care is taken to minimize deterioration ~~in~~ of image quality.

As a result of the foregoing processing, originals for transmission which have been transformed into binary images are compressed according to a prescribed format and are stored in memory 502a. In addition, upon performing transmission protocols with another party and establishing a transmission-ready state, images of originals for transmission compressed according to prescribed format which have been read from memory 502a are transferred to facsimile circuit board 603, changes in compression format and other such necessary processing being carried out at this facsimile circuit board 603, and are sequentially transmitted to the other party by way of a communications line.

Please **replace** the passages between line 11 on page 35 and line 13 on page 37 with the following:

First, variable-magnification processing in the scan direction will be described. During processing to enlarge an image, CPU 401, which carries out control of the image processing apparatus, causes gate a of selector 1, gate a of selector 2, and gate b of selector 3 to be turned off, and causes gate b of selector 1, gate b of selector 2, and gate a of selector 3 to be turned on. Cropped image data are~~is~~ sent from CCD

circuit board 300, passing through gate b of selector 1, and is thereafter written to FIFO memory 4. The image data written to FIFO memory 4 are~~is~~ then read by CPU 401, passes through gate b of selector 2, and are~~is~~ written to memory 26 provided at variable magnification unit 5. At variable magnification unit 5, variable-magnification processing is carried out on the image data written to memory 26. That is, image data are~~is~~ read from memory 26 a plurality of times in correspondence to the enlargement ratio, changing the magnification of the image data. After completion of variable-magnification processing, the enlarged image data are~~is~~ output via gate a of selector 3 to LSU unit 46.

During execution of processing to reduce an image, CPU 401 causes gate b of selector 1, gate b of selector 2, and gate a of selector 3 to be turned off, and causes gate a of selector 1, gate a of selector 2, and gate b of selector 3 to be turned on. Cropped image data are~~is~~ sent from CCD circuit board 300, passing through gate a of selector 2, and are~~is~~ input to variable magnification unit 5. At variable magnification unit 5, variable-magnification processing is carried out on the image data input thereto and image data corresponding to the reduction ratio are~~is~~ output therefrom. The image data on which variable-magnification processing has been carried out passe~~s~~ through gate a of selector 1 and are~~is~~ written to FIFO memory 4. Image data written to FIFO memory 4 passe~~s~~ through gate b of selector 3 and are~~is~~ output to LSU unit 46.

Variable-magnification processing in the cross-scan direction takes place by varying scan rate at scanning unit 40 in accordance with the conventional method. That is, this is executed such that, at digital copier 30 in FIG. 1, the scan rates of scanning units 40a, 40b of scanning unit 40, which capture image data, are adjusted in correspondence to magnification ratio, increasing or decreasing the number of lines acquired by CCD circuit board 300 from CCD 44. For example, reduction is achieved by increasing the rate at which image data are~~is~~ captured and reducing the number of lines per unit time acquired by CCD circuit board 300. Furthermore, enlargement is achieved by decreasing the rate at which image data are~~is~~ scanned and increasing the number of lines per unit time acquired by CCD circuit board 300. Following

adjustment of input line number as a result of increase or decrease of scanning unit 40a, 40b travel speed, the image data are~~is~~ input to the FIFO memory for scan-direction variable-magnification processing, and after being subjected to scan-direction variable-magnification processing, are~~is~~ either output to LSU unit 46 or is written to field memory 403.

Please **replace** the passages between line 20 on page 38 and line 23 on line 39 with the following:

First, variable-magnification processing in the scan direction will be described. During execution of processing to enlarge an image, control signals are sent from CPU 401 such that despite input of image data to reducing variable magnification unit 61, image data is allowed to pass therethrough without being subjected to variable-magnification processing. These control signals cause reducing variable magnification unit 61 to allow image data to pass therethrough despite input thereat. Cropped image data travels from CCD circuit board 300, passing through reducing variable magnification unit 61, and are~~is~~ written to FIFO memory 4. In addition, at enlarging variable magnification unit 62, image data are~~is~~ read from FIFO memory 4 and are~~is~~ variably magnified in correspondence to enlargement ratio, and are~~is~~ thereafter output to LSU 46.

During execution of processing to reduce an image, control signals are sent from CPU 401 such that despite input of image data to enlarging variable magnification unit 62, image data are~~is~~ allowed to pass therethrough without being subjected to variable-magnification processing. These control signals cause enlarging variable magnification unit 62 to allow image data to pass therethrough despite input thereat. Cropped image data are~~is~~ input from CCD circuit board 300 to reducing variable magnification unit 61. The image data are~~is~~ subjected to pixel interpolation and other such variable-magnification processing at reducing variable magnification unit 61, are~~is~~ thereafter written to FIFO memory 4, passes through enlarging variable magnification unit 62, and are~~is~~ output to LSU 46.

Please **replace** the passages between line 5 on page 41 and line 24 on page 44 with the following:

Variable-magnification processing in the cross-scan direction will now be described. At FIG. 6, during execution of processing to enlarge an image, image data captured by CCD circuit board 300, described with reference to FIG. 2, are~~is~~ sent to multivalue image processing section 402 of main image processing circuit board 400, and are~~is~~ written to FIFO line memory 81, which is internal to multivalue image processing section 402. One line worth of image data written to FIFO line memory 81 is read a plurality of times by variable-magnification processing section 82 as a result of FIFO line memory 81 read address resetting. For example, if one line worth of image data written to FIFO line memory 81 is read twice by variable-magnification processing section 82, image data which has been enlarged by a factor of two will be obtained. The image data which have~~has~~ been read are~~is~~ written to field memory 403a.

Furthermore, during execution of processing to reduce an image, a plurality of lines of image data written to FIFO line memory 81 is read intermittently by variable-magnification processing section 82. For example, if the first line of image data written to FIFO line memory 81 is read by variable-magnification processing section 82, but then the second line of image data written to FIFO line memory 81 is not read thereby, image data which have~~has~~ been reduced by a factor of 1/2 will be obtained. The image data which have~~has~~ been read are~~is~~ written to field memory 403a.

Image data for which variable-magnification processing in the cross-scan direction has been completed is passed to the scan-direction image processing section which was described with reference to FIG. 4 and is subjected to variable-magnification processing.

In this way, whereas image data scan rate was conventionally varied in correspondence to magnification ratio, adjustment of the number of times that image data is read in the cross-scan direction permits variable-magnification processing to be carried out such that image data are ~~is~~ captured at a constant scan rate.

Furthermore, at FIG. 6, during execution of enlargement processing, if, at variable-magnification processing section 82, the field memory 403a write address select signal is controlled, and control is such that image data written to FIFO line memory 81 are~~is~~ written at one time to a plurality of lines in correspondence to magnification ratio, the image data will become image data which are~~is~~ enlarged in correspondence to magnification ratio. That is, image data gotten by CCD circuit board 300 of FIG. 2 are~~is~~ input to multivalue image processing section 402, and are~~is~~ written to FIFO line memory 81 within multivalue image processing section 402. Variable-magnification processing section 82 controls the field memory 403a write address select signal, and one line worth of image data written to FIFO line memory 81 is written to a plurality of lines in field memory 403a at one time. For example, by writing the same one line to three lines, enlargement processing of magnification 3 x is carried out.

Please **replace** the passages between line 17 on page 44 and line 1 on page 46 with the following:

In the variable-magnification processing method shown in FIG. 7, enlargement processing can be carried out up to a maximum magnification of 5 x. When executing enlargement processing, image data captured by CCD circuit board 300 are~~is~~ sent to multivalue image processing section 402 of main image processing circuit board 400 of FIG. 2, and are~~is~~ written from multivalue image processing section 402 to FIFO line memory 81. Variable-magnification processing section 82 sends control signals to gates 84-1 through 84-5 in correspondence to magnification ratio, carrying out on/off control of the gates. One line worth of image data written to FIFO line memory 81 is output at one time to LSUs 46-1 through 46-5 in correspondence to the on and off states of gates 84-1 through 84-5.

For example, when performing enlargement processing of magnification 5 x, variable-magnification processing section 82 turns on gates 84-1 through 84-5. In addition, image data written to FIFO line memory 81 are~~is~~ output to LSUs 46-1

through 46-5. Furthermore, when performing enlargement processing of magnification 3 x, because variable-magnification processing section 82 turns off gates 84-4 and 84-5, image data are~~is~~ not sent to LSUs 46-4 and 46-5. Accordingly, the same one line of image data is output to LSUs 46-1 through 46-3.

A13 That is, variable-magnification processing section 82 controls gates 84-1 through 84-5 of the data lines connecting FIFO line memory and LSUs 46-1 through 46-5, so that image data written to FIFO line memory 81 are~~is~~ written at one time to a plurality of lines in correspondence to magnification ratio, which causes the image data to become image data which are~~is~~ enlarged in correspondence to magnification ratio. In this way, whereas image data scan rate was conventionally varied in correspondence to magnification ratio, adjustment of the number of times that image data are~~is~~ read in the cross-scan direction permits image data to be captured at a constant scan rate.

Please **replace** the passages between line 18 on page 47 and line 9 on page 48 with the following:

(1) As shown in FIG. 9B, the image data at line a are~~is~~ written to FIFO line memory A 86.

(2) As shown in FIG. 9C, the line-a image data are~~is~~ read by variable-magnification processing section 82. At the same time, the line-a image data are~~is~~ A14 also written to FIFO line memory B 87. Variable-magnification processing section 82 writes the line-a image data read from FIFO line memory A 86 to field memory 403a.

(3) As shown in FIG. 9D, the image data at line b are~~is~~ written to FIFO line memory A 86, and variable-magnification processing section 82 reads the line-a image data written to FIFO line memory B 87 and the line-b image data written to FIFO line memory A 86. At the same time, the line-b image data is also written to FIFO line memory B 87. Variable-magnification processing section 82 performs interpolation on line a and line b, creating a new line ab, which it writes to field memory 403a.

Please **replace** the passages between line 24 on page 48 and line 13 on page 50 with the following:

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(1) As shown in FIG. 10B, the image data at line a are~~is~~ written to FIFO line memory A 86.

(2) As shown in FIG. 10C, variable-magnification processing section 82 reads the line-a image data. At the same time, the line-a image data are~~is~~ also written to FIFO line memory B 87. Variable-magnification processing section 82 does not write the line-a image data read from FIFO line memory A 86 to field memory 403a.

(3) As shown in FIG. 10D, the image data at line b are~~is~~ written to FIFO line memory A 86, and variable-magnification processing section 82 reads the line-a image data written to FIFO line memory B 87 and the line-b image data written to FIFO line memory A 86. At the same time, the line-b image data are~~is~~ also written to FIFO line memory B 87. Variable-magnification processing section 82 performs interpolation on line a and line b which it read, creating a new line ab, which it writes to field memory 403a.

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(4) As shown in FIG. 10E, the image data at line c are~~is~~ written to FIFO line memory A 86. Variable-magnification processing section 82 reads the line-b image data written to FIFO line memory B 87 and the line-c image data written to FIFO line memory A 86. At the same time, the line-c image data are~~is~~ also written to FIFO line memory B 87. Variable-magnification processing section 82 performs interpolation on line b and line c which it read, creating a new line bc, which it writes to field memory 403a.

As a result of the foregoing reduction processing, line-ab and line-bc image data are written to field memory 403a. In the event that there is a plurality of lines of image data on the original to be captured, the foregoing processing is repeated to reduce the original image by a factor of 1/2.

Carrying out processing as in the foregoing example permits interpolative processing to be carried out between adjacent lines and permits image smoothness to be preserved, with the rate at which image data is captured being kept constant, even when magnification ratio is made extremely large. Image data for which variable-magnification processing in the cross-scan direction has been completed are~~is~~ passed to the scan-direction image processing section which was described with reference to FIG. 4.